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BUILDING TRANSIT-FRIENDLY COMMUNITIES

A Design and Development Strategy for the Tri-State Metropolitan Region

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Prepared by Regional Plan Association

Regional Plan Association

Regional Plan Association (RPA) is the nation's oldest non-profit regional planning organization. Established in 1929, it seeks to improve the quality of life in the New York/New Jersey/Connecticut Metropolitan Region by creating long-term plans and promoting their implementation across political boundaries. On the basis of professional research, RPA recommends policy improvements, fosters cooperation among various government and private organizations, and involves the public in considering and shaping its own future. RPA's areas of research include land-use planning, transportation, economic development, the environment and governance.

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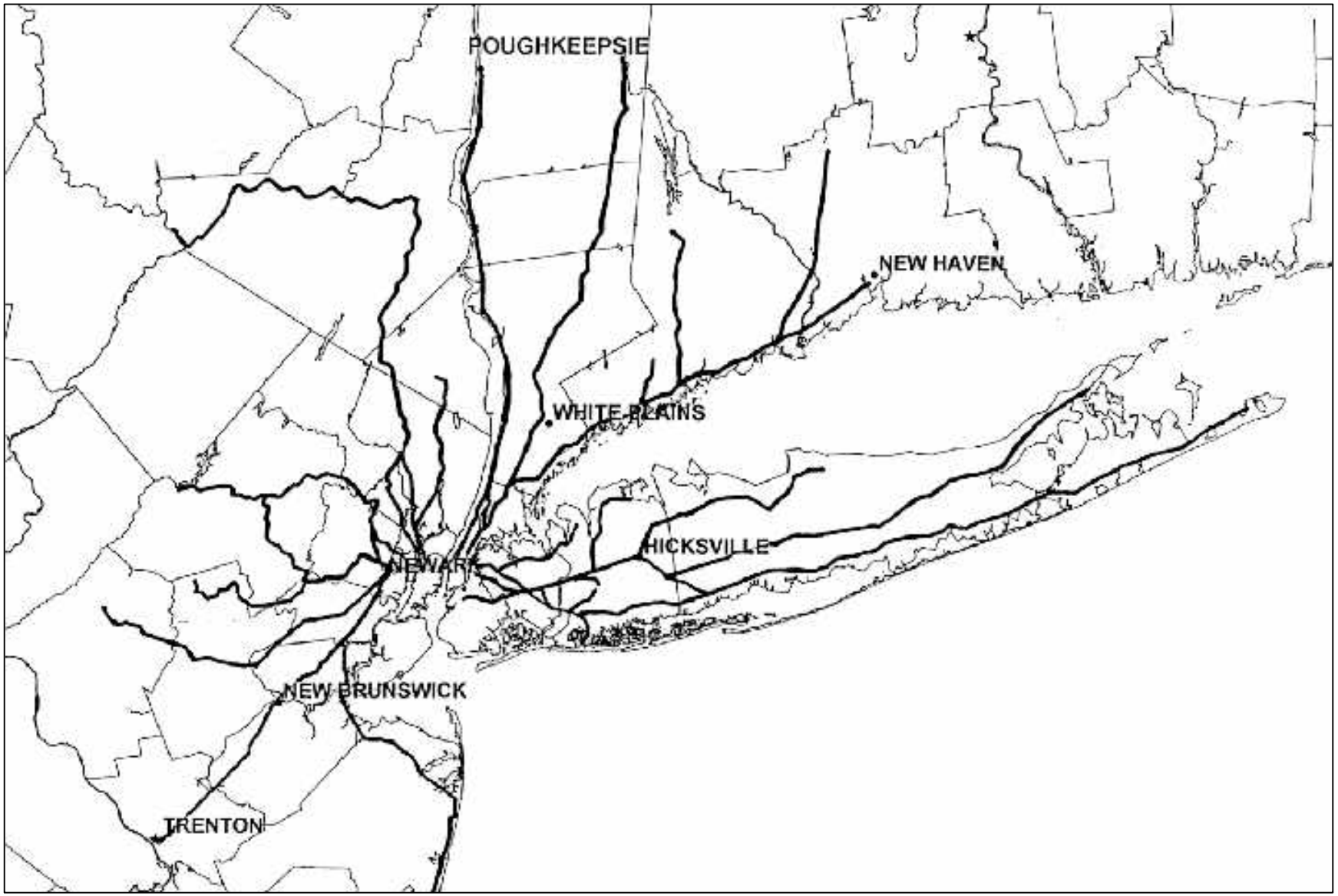


EXECUTIVE SUMMARY

This document presents the findings and recommendations of Regional Plan Association's three-year examination of transit-friendly communities in the tri-state metropolitan region and of the potential to transform suburban communities into more transit-friendly places.

A transit-friendly community is a place that encourages transit use, decreases automobile dependency, and offers a variety of activities by incorporating commercial, residential, and civic uses within reasonable walking distance to a rail station or bus stop in a well-designed pedestrian-oriented environment. This study focuses on communities with access to the New York-New Jersey-Connecticut metropolitan region's commuter rail system, North America's largest.

Fortunately, this region—unlike many others in the U.S.—developed around rail transit, particularly during the first half of the 20th century. Our commuter rail system is one of the most extensive and well-used public transit systems in the world. The New York-New Jersey-Connecticut metropolitan region is served by three major commuter rail services, not including Amtrak. NJ TRANSIT provides commuter rail service to 150 stations along 10 lines. Metro-North provides service to 120 stations along five lines in Connecticut and along the Hudson River. And, the Long Island Rail Road provides service to 134 stations on Long Island on 10 lines. The three systems serve more than 182 million passengers annually.[1] Ridership on all three systems has been growing since 1990. In some communities, the using share of Manhattan-bound commuters exceeds 90%.

However, since the 1950s, several national trends have promoted sprawling suburban development patterns. These include completion of the interstate highway system, low gasoline prices, tax deductions for mortgage payments and the dependence of municipalities on local property tax revenues to provide basic services. The resulting decentralized patterns of growth and separation of land uses have forced people to drive farther and more often. After several decades of de-centered development, we have reached the limits of our highway system's capacity to serve this region's growing communities.

Suburban development patterns that devour open space and increase the number of cars on the road cannot be sustained over the long run. Opportunities to expand highway capacity are limited by right-of-way requirements, community opposition, environmental concerns and high costs. This region needs to promote land use patterns that increase transportation efficiency, encourage transit use, and decrease automobile dependency. These objectives can be achieved by concentrating development in mixed-use centers around commuter rail stations and providing pedestrian access to train stations, shopping, residential neighborhoods, and workplaces. Alternative forms of

[1]Regional Transportation Statistical Report - 1995, New York Metropolitan Transportation Council, March 1997.

development should concentrate growth in areas, served by public transportation, where infrastructure exists to support compact communities. Transit agencies in cities such as San Francisco, San Diego, Portland and Washington, DC are extending commuter rail lines into their outlying regions and encouraging joint ventures to develop dense residential and mixed-use communities around their stations. They are also encouraging municipalities to develop a critical mass of housing and job opportunities in close proximity to rail stations.

This is our region's challenge: to build on its foundation of existing rail communities by allowing higher densities of residential and commercial uses immediately around rail stations, improving the pedestrian environment, strengthening connections to rail stations and local shops, and identifying opportunities to build compact residential neighborhoods where residents will take advantage of public transit.

TRANSIT-FRIENDLY COMMUNITIES

Transit-friendly communities generally encompass an intensively developed area within a one-quarter to one-half mile radius of a rail station—a distance that can be comfortably walked in approximately 5-to-10 minutes.
Within this area, there are a variety of mixed uses: shops, offices and residential neighborhoods. Most importantly, the streets in the area around the station are designed to slow cars and improve pedestrian connections. The objective is to locate housing, work and shopping opportunities within walking distance of public transportation.

BUILDING ON EXISTING RAIL COMMUNITIES

RPA's Transit Friendly Communities program was inspired by the understanding that the most livable and desirable places to live and work in the region—and those with the highest property values and commercial and retail rents—were those traditional communities built around the regional rail system. In many cases these places didn't happen by accident. Railroad companies, often in partnership with real estate developers, built suburban communities around rail lines developed in the late 19th and early 20th centuries.

For more than a century, railroad builders and the public understood the importance of coordinating transportation and community development to create these symbioses and cross-subsidies. The area around Grand Central Terminal, perhaps the most successful urban center in the world, was a master-planned office and hotel complex designed around the terminal and called "Terminal City." The terminal itself was designed as a grand gateway to the district, and the district was largely built on air rights over the rail yards serving the terminal. Synergy was established between rail ridership and the real estate development served by rail. Both lent value to each other, eliminating the need for subsidies.

Since the Second World War, we have forgotten how to create and sustain these relationships. Over the past 50 years, the region has developed around its highways, almost completely ignoring its vast commuter rail system. While development in outlying areas encountered little opposition, development proposals based around rail stations and along rail corridors often face many obstacles. Zoning

regulations, community fear of higher residential densities, and real estate market conditions have prevented denser residential and commercial projects that would promote these communities. Well designed and balanced projects can increase density without threatening a town's character.

Despite these challenges, small town centers with rail stations such as Scarsdale, Hempstead and Harrison, NY, South Norwalk and Stamford, CT, and Elizabeth, NJ, have begun or are considering transit-oriented development or redevelopment projects. Other outlying areas that still have open land suitable for development—such as Princeton Junction, NJ, and Wassaic, NY—also have the potential to become true transit-oriented communities.

As other parts of the country are undertaking efforts to implement transit-oriented developments, this region finds itself at a unique advantage. We are fortunate in the number of existing rail communities that still retain many transit-friendly principles. Many of these places, originally developed as rail communities at the turn of the century, have retained their original physical layout and pedestrian-friendly environment.

ACTION PLAN

Strengthening the region's network of transit-friendly communities will require the region's transportation agencies—including the Metropolitan Transportation Authority, Metro-North, Long Island Rail Road, NJ TRANSIT and state DOTs— to work with municipal officials, developers, business councils and local residents to promote transit-friendly improvements. State governments could promote transit-friendly development by strengthening their state plans to provide financial and regulatory incentives for communities and developers. Transit-friendly communities improve the region's economy, environment, and social equity—the foundations of our quality of life—by providing efficient transportation without consuming land or degrading air quality. They also provide new investment in downtowns that have often been passed by the economic mainstream.

Using design charrettes held in Yonkers and Princeton Junction as working models, RPA will work with local communities to implement transit-friendly improvements on a local level. Surveys of suburban comprehensive plans and zoning ordinances indicate that significant changes in those regulations will be needed to promote more transit-oriented developments. The objective is to transform mature suburban areas around the region's rail stations into transit-friendly communities by taking advantage of opportunities for infill residential development, pedestrian access improvements, and mixed-use developments. In order to fully implement transit-oriented design improvements, the following steps are necessary:

- Identification of property sites adjoining commuter rail stations.
- Development of station area plans.
- Modification of zoning regulations.
- Communication with local communities to gain public support.

RPA is committed to implementing these improvements through a community-based process in which stakeholders, citizens and local officials are involved in developing a

transit-friendly vision for their community. Our goal is to convey the benefits of implementing transit-friendly design and land use improvements to towns with commuter rail stations. To create viable rail communities, municipalities must adopt land use regulations that encourage higher densities and design standards that create pleasant and comfortable environments for pedestrians, visitors and residents to strengthen the pedestrian connections to the rail station.

CONCLUSION

RPA is promoting transit-oriented and pedestrian-friendly land use patterns and urban design practices in areas around rail stations. In the process of transforming existing rail communities into transit-friendly places, we will be strengthening these places as town centers with viable retail streets and neighborhoods that are more attractive and pleasant places to live and to visit.

THE IMPACT OF SUBURBAN SPRAWL

A REGION AT RISK

RPA's Third Regional Plan asserts that as a new millennium approaches, the metropolitan region of New York, New Jersey and Connecticut is a region at risk. The region faces a future in which it must compete in a global economy that offers new challenges and opportunities. And, to remain competitive, the region must improve the essential elements that are the basis of its quality of life—its economy, environment, and social equity. For the past 30 years a new pattern of land use has swept the nation, involving the construction of massive campus-style commercial and industrial facilities in sprawling residential suburbs. Expanding rings of development have moved beyond traditional urban and town centers and have consumed vast areas of open land and shattered traditional patterns of community. This spread out pattern of homes and jobs has led people to drive more than ever. Efforts to protect the region's quality of life and environment from further degradation must begin by looking at the causes of problems to find innovative and comprehensive solutions.

RPA initiated (in cooperation with the Rutgers University Center for Urban Policy Research) the US-Japan Metropolitan Planning Exchange. A focus of this four-year cooperative research project was a comparative look at community design and transit investment policies in the tri-state and Tokyo metropolitan regions. What we found is that transit-oriented community design was a fundamental element of Tokyo's planning system. National and prefectural (state) planning guidelines require that communities implement zoning for dense, mixed-use centers adjoining train stations.

Most commuter rail lines in Japan are privately owned and operated without public subsidies. In many cases, the railroad companies are actively involved in developing transit-oriented residential, retail and office complexes at or near their stations, both to encourage ridership and to boost revenues. When RPA staff asked executives of these companies how they developed this brilliant concept, their response was "We learned it from you, at places like Grand Central Terminal," making this another case of American know-how being successfully exported to other places while largely forgotten here.

During a 1993 exchange visit to New Jersey's Route 1 corridor, one Japanese railroad executive politely asked, "Isn't there something else you could do with your tax revenues other than subsidize transportation?" The thrust of his question was that unless we better coordinate transportation and land use decisions, we always will be compelled to provide heavy subsidies for transportation services. A strategy of developing transit-friendly communities can be an effective component of a regional effort to address automobile dependency, traffic congestion, depletion of open space and neglected town centers. If these problems are not addressed, they pose a serious threat to the quality of life of the entire region.


Figure 2. Traffic congestion

AUTO DEPENDENCY

Deconcentration of homes and jobs has meant that people are driving more than ever. In suburban areas, the automobile is the preferred, and in many cases the only, way for people to get around. By trading in our cities for suburban subdivisions and office parks, the region's residents have far fewer choices when it comes to how they get to work, school or leisure time pursuits. The number of vehicle miles traveled in the region grew by 60% from 1970 to 1990.

Throughout the 1950s, '60s, and '70s, highway construction in this region exploded. New toll roads were constructed (New York State Thruway, New Jersey Turnpike, Garden State Parkway), the interstate system was largely completed, and a number of state highways were widened and upgraded into limited access facilities. The rate of expansion of regional road capacity has now slowed from 62 miles per year in the 1950s to only about seven miles per year in the last 10 years: and it will never again reach the earlier pace. The last interstate highway in the region has now been built and remaining highway expansion proposals are already mired in controversy. Highway budgets now focus on maintenance of the aging infrastructure network and on management systems to gain greater productivity.

Many factors have crowded more and more cars onto the region's roads:

- Local suburban development projects, which appear to be in a town's best interest, draw ever more cars onto already crowded streets.
- Most parking in the region is free. And even when it is not, many employers provide it to their employees. The federal tax code allows a nontaxable fringe benefit of up to $150 a month that reimburses drivers for parking charges. A mid-1980s survey of trans-Hudson auto commuters into Manhattan found that over half were being subsidized by their employers. But by law, employers can only provide a tax-free, fringe benefit of $60 per month to workers who take transit, even if their out-of-pocket costs are comparable to those of drivers. This translates into a government-sponsored 60% penalty to transit users.

- Gas prices have continued to decline compared to the rate of inflation and the price of transit. Gasoline prices are lower today than at any point in the last 75 years, after adjustment for inflation.[2] Gas is the cheapest liquid you can buy, cheaper than milk, beer, Coke, or even bottled water. But unlike these other liquids, it is non-renewable.
- More people are able to drive, and the number of workers and the number of registered autos are now almost identical in many parts of the region. During the 1980s, the youngest of the baby boom population became old enough to drive, and shortly thereafter they arrived in the workforce, fueling the large increase in driving during the decade.
- Current toll policies are absolutely backward. They reject the fundamental market principle of charging more for a scarce resource. Instead, the tolls are discounted for commuters who use the roads during the most crowded times.

Even though vehicles run cleaner than they have in the past, more cars driving longer distances clog the region's roads and contribute greatly to air pollution. As the region's population expands—assuming much of the expansion will take place in the suburbs—there will be more cars on the roads, exacerbating traffic congestion. However, the region simply does not have, and cannot afford to build, the capacity for more vehicles. RPA projects that more than 230,000 new trips to work will be made to Manhattan daily in 2020. While over 80 lanes of highways would be required to accommodate this growth, only five additional sets of commuter rail tracks could provide capacity for those new trips. It is time to look for a more balanced approach in which some suburban growth is concentrated around rail corridors to make public transit more accessible to a larger number of people.

Increases in highway travel also appear to be flattening, but it is too early to know if this is a temporary trend. And if stronger growth appears, we must redirect it toward centers where transit, walking, and biking can take the place of auto travel. The bottom line is that we should not be building, on a wholesale basis, more road capacity. That era is over. If we revive it, it will bring us choking new congestion and millions of acres of new sprawl. When this happens again and again, the cumulative regional effect is crippling traffic congestion, a diminished quality of life, impaired air quality, and decreased productivity.

While the region can take some small comfort in not being the most congested major metropolitan area in the nation—Los Angeles tops the list by far—our congestion levels are not improving, and they impose a competitive burden we cannot afford to live with. Moreover, there are significant congestion costs that further reduce our competitiveness. According to one 1991 estimate, congestion costs the region $6.6 billion a year in lost time and extra gas, or nearly $1,100 per year per vehicle—compared to $900 per year per vehicle in Dallas, and only $650 in Atlanta.[3]

[2] American Petroleum Institute, *The Cost of Motor Gasoline to Consumers: 1994 Annual Review,* 1995.

[3] Texas Transportation Institute, 1994.

Figure 3 Urban decay

DECLINE OF CENTERS

At the same time that the region has been devouring land at its periphery, we have been abandoning our urban areas, hollowing out the cities that historically have been the locus for jobs and people. Cities such as Hicksville, Trenton, and Poughkeepsie lost 10% or more of their populations between 1970 and 1990. Newark lost almost 30%.[4]

Throughout the region, town centers have languished as suburban malls and superstores have proliferated along the highways, in turn giving way to strip malls and even larger shopping centers. Retailing activity in places such as New Rochelle, Port Chester and Hempstead has declined, but these places still retain their original pedestrian-friendly street layouts and are places that must be revitalized.

Our region consists of literally hundreds of traditional towns, villages, and hamlets, many with access to the region's commuter rail system. For this reason, the region should refocus development and investment in existing centers rather than creating new development at the region's edge. Most successful centers evolve over generations, eventually forming a network of established communities. The challenge here, and in other metropolitan regions that developed around rail systems, is to revitalize, rebuild, round out and gradually infill the existing constellation of town centers.

[4] U.S. Census of Population.

To address these trends, a regional development strategy should be adopted that utilizes transportation options more efficiently. Transit-friendly communities can be part of a regional growth management strategy that could relieve expansion pressures by providing areas to funnel development and in the process create a new residential market niche for developers. In the long run, developments close to stations may be more sustainable and efficient because they take advantage of existing infrastructure and established transportation links. Transit-friendly communities offer an opportunity to create compact centers in the suburbs. Compared to sprawl development, they consume less land, deplete fewer natural resources and are more efficient in the delivery of public services such as public transit.

LAND CONSUMPTION

The rate of suburban sprawl has accelerated despite a more moderate level of population growth. Population in the region has grown only 13% in the last 30 years, but the amount of developed land has grown by 60%.[5] That means that since 1964 development in the region has raced across two million acres. Thirty years ago 81% of the region was open space; now only 70% of the region's land base is still green. We have sacrificed our landscapes for high-cost sprawl and endless miles of traffic congestion.

Figure 4. Suburban sprawl

[5] Population estimates based on U.S. Census Population data from 1960 and 1990. Land use data from 1962 is "The Tri-State Region and Environs," Regional Plan Association, 1965, and "Urban Land Use in the Tri-State Metropolitan Region," Regional Plan Association and the Center for Remote Sensing and Spatial Analysis, Cook College, Rutgers University, 1995.

Figure 5. Visualization of an ideal transit-friendly community.

While suburban areas have been expanding since the 1920s, a generation ago the types of suburban land uses broadened and suburban expansion accelerated. Massive campus-style commercial and industrial development jumped out from central areas into previously residential suburbs. From 1975 to 1992, some 90% of the region's new jobs were located outside the core urban counties of the region (New York City and Essex, Hudson, Union counties).[6] In Connecticut alone, three out of four new jobs have been located in the suburbs since 1950.[7] As a result, the leading edge of housing development has moved even farther away from Manhattan, Newark, White Plains, Stamford and other urban centers.

[6] U.S. Department of Commerce.
[7] Council on Environmental Quality, *Connecticut Environmental Review*, 1990, p.14.

TRANSIT - FRIENDLY COMMUNITIES

Transit-friendly is a term that refers to plans, physical improvements, designs, development projects or policies that encourage public transit use. Transit-friendly communities are designed to encourage public transit use and provide convenient pedestrian access to transit facilities. Although many of the transit-friendly principles regarding design and land use can be applied to other forms of public transportation, for the purposes of this report RPA focused on communities centered around the region's commuter rail stations.

Transit-friendly communities generally encompass an area within a quarter- to half-mile radius around a rail station. This distance represents a comfortable five-to-ten minute walk, a reasonable distance that most people are willing to walk to a train station or other destinations in a community. Also, research has shown that residents living within a quarter mile of rail stations are five-to-seven times more likely to use rail than other area residents.[1]

Physically, a transit-friendly community, in addition to being located around a rail station, is a dense form of development that includes compact residential neighborhoods, user-friendly public spaces, a central core of shops, and streets that are designed to accommodate both cars and people.

The objective of transit-friendly community design is to create compact, pedestrian-friendly places where people can get to school, recreation, shops, and the train station without driving. The advantages of having communities where people can choose not to use a car include environmental, equity, and economic benefits:

- Using cars less improves air quality and traffic congestion. Development in centers also reduces incentives to develop open spaces.
- Transit provides mobility for people who are too young, old, or infirm to drive themselves in a car, or who cannot afford a car.

Compact development patterns cost less in terms of government services and make the best use of expensive investments in infrastructure and services. Research by RPA and others has shown that transit-friendly communities reduce car usage, increase pedestrian activity and promote higher levels of transit ridership. The National Transit Access Center at the University of California at Berkeley surveyed residents of four residential projects developed near San Francisco's Bay Area Rapid Transit (BART) stations and found that transit ridership was higher among these residents than among the general public.[2] Approximately eight percent of East Bay residents in San Francisco regularly commute on BART, while transit ridership among residents in transit-based communities

[1] Relationship Between Transit and Urban Form Handbook, Transit Cooperative Research Program TCRP H-1, November 1995, page 29.

[2] "The Bay Area's Emerging Transit Based Housing," Michael Bernick, Urban Land, July 1993, pp. 38-41.

averaged over 35%. Regular use of BART ranged from 27.6% of the residents in the Mission Wells development to 41% at the Foothills development. In the tri-state metropolitan region, the proportion of suburban residents who use commuter rail service is highest in those communities that have transit-friendly centers, including such places such as Bronxville, Maplewood and Port Washington. In these and many other suburban towns more than 20% of all households have at least one resident commuting daily on Metro-North, NJ TRANSIT, or the LIRR. Similarly high percentages should be achieved throughout the region.

Rail stations can also have a measurable impact on the surrounding community by being a catalyst for economic revitalization. For example, towns along the Morristown and Gladstone Branch expect a spurt in economic development with the introduction of direct rail service to Penn Station. The new Midtown Direct service shortens the round-trip ride to Midtown and back by 30-to-40 minutes a day, according to NJ TRANSIT. Towns like South Orange have witnessed a revival of its 10-block central business district. Also, the village's planning board has drawn up a broader redevelopment plan to transform underutilized sites around the train station into a neighborhood of residential, retail, hotel, office, and entertainment uses. There are also plans for streetscape improvements that include widening sidewalks, adding landscaping, new lighting and improved parking areas. In addition, the village plans to work with NJ TRANSIT to build a 600-car parking garage with either retail shops or a movie theater on the ground floor.

Figure 6. Scarsdale, NY

There are several existing model transit-friendly communities in the region. Places such as Radburn, NJ, and Scarsdale and Forest Hills, NY, are classic rail villages characterized by mixed commercial uses and compact residential development within walking distance of the rail station. Residents of these communities often cite pedestrian-oriented streets, local shops within walking distance, and proximity to rail station as assets.

There are other municipalities in the region, such as Elizabeth, NJ, South Norwalk, CT, and Hempstead, NY, that have recognized the potential economic development benefit of concentrating development and creating a more pedestrian-oriented environment around rail stations and are implementing transit-friendly improvements. For example, the Village of Hempstead's Community Development Office has embarked on a redevelopment program that includes

revitalization of its downtown retail district, streetscape improvements, commuter parking lot improvements, pedestrian access improvements and a residential development adjacent to the downtown multi-modal transportation hub, which includes a Long Island Rail Road train station and a Long Island Bus terminal.

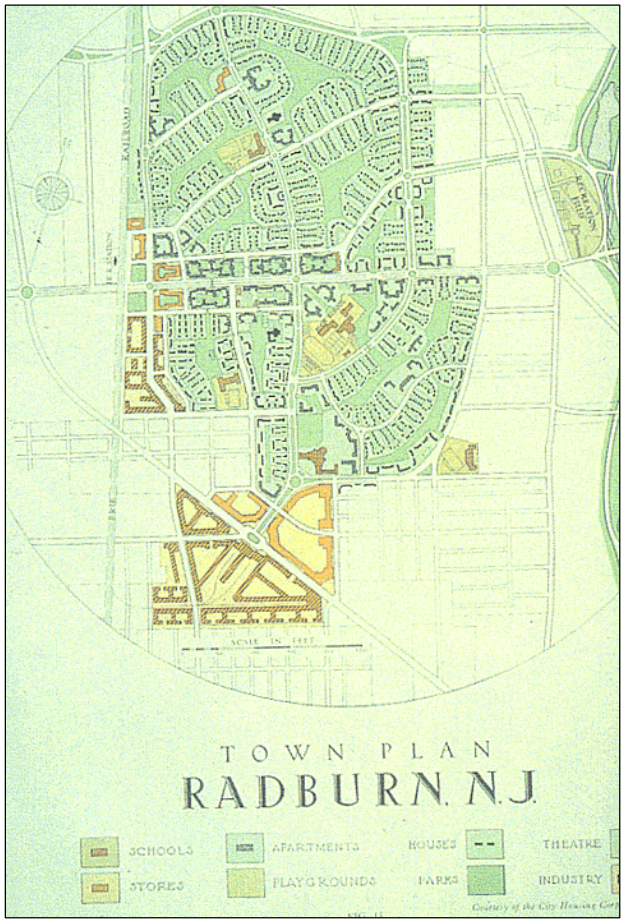


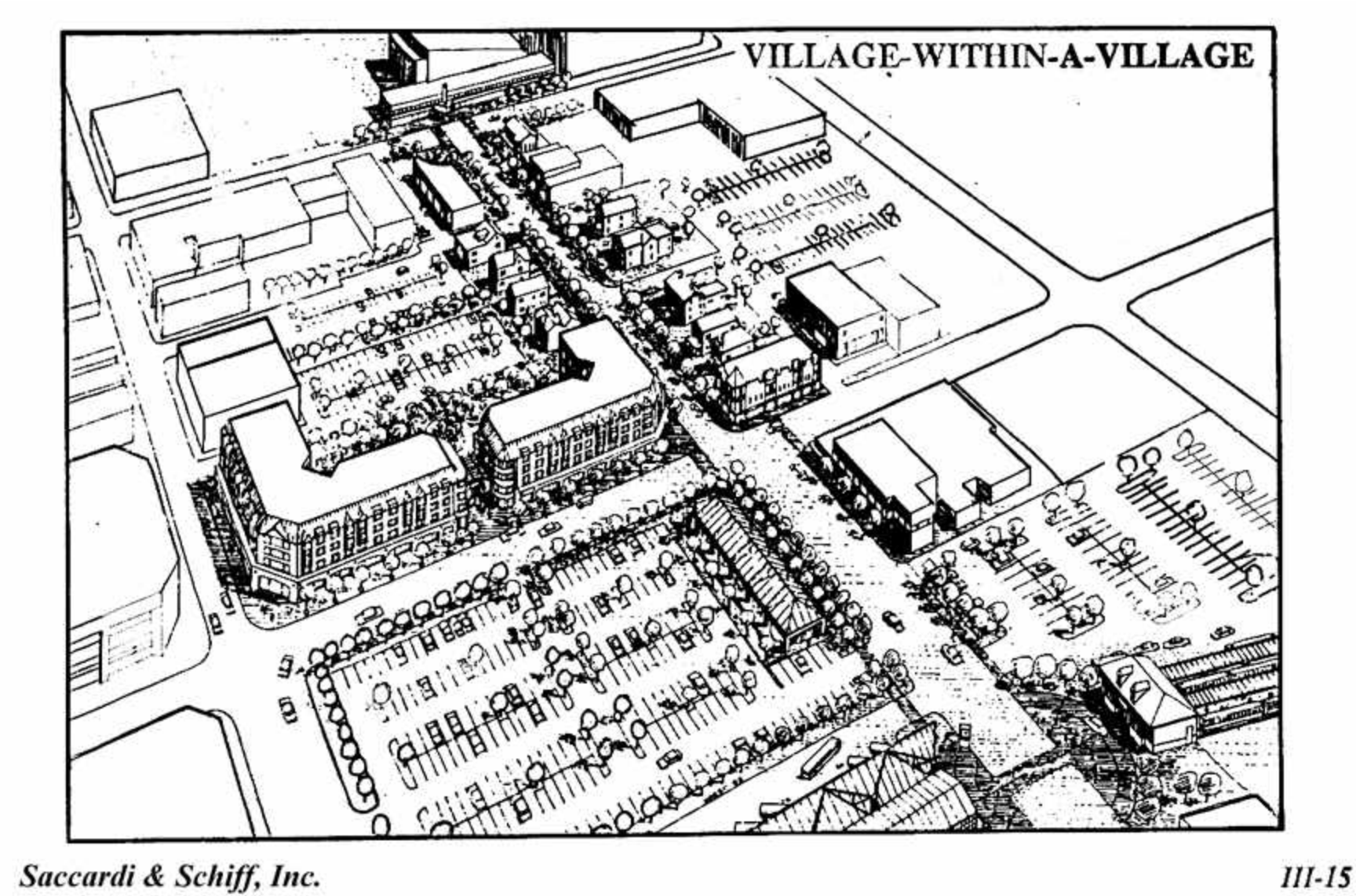
Figure 7. Radburn, NJ

NEW URBANISM

RPA's transit-friendly community design guidelines fit into a broader context, called New Urbanism. In response to the trends of suburbanization and characterless sprawl, a number of architects, landscape architects, urban designers, and planners have come together under the banner of the Congress for the New Urbanism (CNU). CNU has begun to promote alternative models for suburban growth, generally based on the concept of building new, planned, compact, mixed-use village and town centers. Many of these new town plans are based on older models of town planning—including the work of early 20th century planners from the Garden City Movement, including Raymond Unwin, Frederick Law Olmstead, Jr., and John Nolen—that were first promoted in this country by RPA's 1929 Regional Plan. These trends have formed an important movement in planning and architecture and they have improved the design of new communities and brought historical contextualism back into urban design.

But the tri-state region is mature. It does not require the development of a significant number of new towns. Our built environment consists of hundreds of traditional towns, villages, and hamlets. Many have access to the regional rail system and room for significant infill and expansion. RPA seeks more to refocus development and investment in existing centers than to create new development at the region's edge. Our traditional centers are still located in the region's core, whose form has been altered from uniform concentric rings of development to a pattern in which each

Figure 8. Hempstead, NY rendering of Downtown



sub-region has developed connections to the core along suburban corridors. Robert Geddes, former Dean of the School of Architecture at Princeton University, has suggested the analogy of each sub-region being the petal of a rose, each with its own life-supporting connection to the center. The recommendations in RPA's Third Regional Plan are designed to reinforce these connections, both between the petals and the core and between the petals themselves. Within that framework, transit-friendly communities present an opportunity to strengthen the petals themselves—communities throughout the region that are connected by our commuter rail systems.

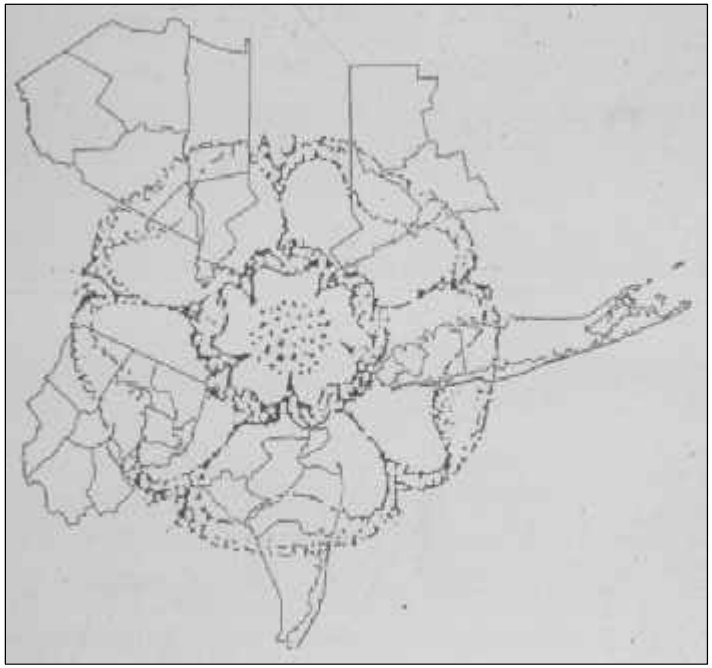


Figure 9. The tri-state region as a rose

REGIONAL VISION

The transit-friendly communities strategy is RPA's vision of refocusing investment and development around the region's vast commuter rail system. Retrofitting station communities into transit-friendly communities is a strategy that can address some of the land use, design, environmental, transportation, and quality of life issues affecting the tri-state metropolitan region. The time has come for the region's municipalities and transit agencies to seriously consider policies that encourage the development of transit-friendly communities. Programs to concentrate development around stations have begun in the San Francisco Bay Area, California; Portland, Oregon; and in the Washington, DC region. Research has shown that these types of communities can have region-wide benefits:

- Reduced Vehicle Miles traveled (VMT) growth.
- Increased public transit ridership.
- Revitalized village centers.

The challenge is to translate this region-wide strategy into action at the local level by identifying station areas, developing station area plans, modifying zoning regulations, and informing and communicating with local officials and communities to gain public support for transit-friendly communities.

There is a role for the Metropolitan Transit Authority, Metro-North Railroad, Long Island Rail Road and NJ TRANSIT in implementing station area zoning and designs. These agencies have a few efforts underway to implement transit-oriented development around stations, but there are no specific transit-friendly goals or programs in place.

Because these agencies do not own large tracts of property other than the station facility itself, it is difficult for them to play a direct role in developing transit-oriented projects. However, there is an important supportive role they play in providing technical assistance in transit-friendly improvement projects. For example, NJ TRANSIT has published a handbook, "Planning for Transit-Friendly Land Use," designed to assist citizens, local officials, designers, and planning professionals interested in improving the coordination between land use planning and transit.

Metro-North, as part of its Wassaic extension project, is working with local officials and residents to create a desired vision for growth around a new station site. All parties agree that extending train service to this area will spur development. The efforts are focused on how to manage this growth in an appropriate manner and in a way that harnesses the benefits of having an active rail station at the center of the village.

To fully implement the transit-friendly vision in this region, municipalities will have to establish station area districts and create district-specific plans that encourage the kinds of development and public space improvements that support pedestrian activity and rail transit use. At the moment, zoning regulations prohibit the kinds of development necessary to create viable transit communities. Municipalities need to be educated about the economic development benefits of transit-friendly improvement opportunities.

LAND USE PRINCIPLES

During the last 40 years, the New York-New Jersey-Connecticut region has witnessed a decentralized pattern of development that has drained the vitality of the region's centers at the same time that it has overburdened suburban infrastructure and undercut community character and environmental quality in the suburbs and countryside. This decentralized pattern of growth, encouraged by large-lot zoning, low densities, and separation of land uses, has forced people to drive more often and farther distances. The increase in vehicle miles traveled has far outstripped the rate of population growth in the region and indicates that the region's residents have become more dependent on their automobiles. Much of the growth in the suburban areas has concentrated around expressways. In effect, the region has developed as if its commuter rail system did not exist. Land use decisions have also made it difficult for the region's residents to find convenient, cost-effective, and pleasant alternatives to the automobile, causing congestion, stagnant transit ridership and VMT growth.

These conventional land use practices, hostile to pedestrians and transit, have focused on accommodating the automobile and conspire to make transit a less inviting mode of travel

- Residential zoning practices that spread housing units far from one another on large lots;
- Zoning and design of office and other non-residential properties that similarly increase distances between potential locations through setbacks and side clearances, increasing the difficulty of providing transit efficiently;
- Parking requirements that guarantee more than enough parking for all who drive;
- Subsidization of driving through free parking, low gas costs, or bad toll policies discourages transit riders who still must pay for their trip.
- Design of streets near transit stops without sidewalks or bike paths and with non-existent or dangerous places to cross traffic;
- The absence of clustering development in a larger area beyond walking distance of stops;
- Transit facilities that are unsafe or unpleasant; and
- Lack of amenities at transit stations.

Despite this daunting list, many transit-friendly improvements and centering development around rail stations can provide some of the most promising opportunities for a more balanced transportation system that provides access to alternative transportation modes such as walking, bicycling and public transit.

Recent studies such as John Holtzclaw's *Using Residential Patterns and Transit to Decrease Auto Dependence and Costs* have hypothesized that in communities with higher residential densities that also have convenient access to public transit, nearby shopping and a more pedestrian-oriented environment, residents decrease the length and frequency of their automobile use by 25-30%. However, to get people out of cars, their alternative must be at least as convenient and cost-effective as driving. And, if the alternative is public transportation, service providers must work to meet the needs of its customers to further encourage ridership.

Current land use regulations need to be modified to encourage transit-friendly communities that consist of a mix of medium-density residential and commercial uses, an interconnected street system and ample public spaces, all developed around a retail commercial center adjacent to a transit station. The key to transit communities is mixed use and moderate residential densities.

Housing near rail stations supports the retail district without generating large increases in traffic and parking demand. Transit-friendly zones, transit-related urban center districts, density bonuses and transfer of development rights are promising incentives for developers to build transit-friendly projects in a station area. When implemented, the recommendations will fulfill RPA's vision for pedestrian-friendly communities around rail stations. The following illustrations depict a conventional development pattern of a rail suburb and an alternative vision developed along transit-friendly community principles.

The first illustration shows a scenario in which offices and shopping centers spring up along the major highways into town, which are widened and straightened to handle increasing traffic loads. The remaining woodland and farm fields near town are filled with more large lot subdivisions, offices and retail outlets. The rail line continues to function but loses ridership year after year due to increased auto dependency and lack of investment in facilities and new technology. The fabric of the town center is eroded by the demolition of historic buildings, the widening of Main Street and the construction of inappropriately scaled and designed new buildings and their associated parking lots. The town's zoning regulations have encouraged the separation of uses into distinct areas and have mandated the sprawling pattern of development shown. Landowners and developers, however, have received most the blame for having turned an attractive and functional community into just another part of the region's sprawl.

Figure 10. Vision for a transit suburb after typical development

The second illustration depicts RPA's vision for a transit-friendly community. In this case, in order to avoid development of the surrounding open space, the town channeled new development into the existing 1980's development north of town and other adjacent areas by increasing allowable residential densities from two acre to quarter-acre lots. Homeowner opposition to the new development was eventually offset by the dramatic rise in their property values and the knowledge that new development would be carefully located and designed to enhance neighborhood character. A greater variety of building types, scales and uses has been introduced in the redevelopment of the suburb to recreate the variety and scale of the existing village. A new mixed-use downtown has been created around the existing commuter rail line. The same uses shown in the first illustration of the conventional development pattern have been incorporated into the more traditional town center. Parking is located in lots behind buildings or in new structured garages with ground floor retail. The scale and character of the town expansion is modeled after other successful community centers such as those in New Canaan and Princeton. The enhanced value of denser development in the town center has been used to financially offset much lower development density in the surrounding countryside.

Figure 11. Vision for a transit-friendly community

MIXED LAND USE

Research analyzing the relationship between land use and public transit use in 11 large metropolitan areas including Boston, Dallas, Los Angeles, and Washington, DC has found that mixed-use developments and higher densities of housing increase the use of public transportation and the use of other non-automotive means of transportation (i.e., walking and biking).[3] These findings have public policy implications regarding land use practices and rail stations. Areas that are well served by rail transit like the New York-New Jersey-Connecticut tri-state region should encourage denser mixed use developments to increase public transportation ridership and control vehicle miles traveled. This could be achieved by establishing transit districts and encouraging infill development and retrofitting of towns surrounding rail stations.

Traditionally, urban areas as well as many of this region's older communities have incorporated mixed uses into their downtowns and neighborhoods. Suburban zoning, however, has regulated the separation of commercial, retail, and residential uses. To maximize the benefits of a transit-friendly community, the area around the stations should include these uses, requiring municipalities to view station areas as distinct districts which include a mixture of uses. In Loudon County, VA, their general plan has proposed locations where extension of the rail system be developed as transit-friendly villages. Approval of the plan for these Transit Related Urban Centers (TRUC) is contingent upon a firm commitment to extend a fixed rail system. The county's plan goes so far as to specify percentages of land uses for a TRUC.

The land use mix (measured as percentage of the land area) in a transit-related urban center will generally comply with the following minimum required ratios[4]:

Urban Neighborhoods	25%
Commercial, Retail, Office	40%
Public and Civic	10%
Public Parks and Open Space	5%

RETAIL REDISCOVERING THE VILLAGE SQUARE

The decentralization of residences in the suburbs away from the traditional village centers and the development of malls and the recent expansion of "big box" retailers have been blamed for the steady decline of Main Street and downtown retailing. However, many national chains like Talbots and the Gap, Inc. are finding that many shoppers would rather shop at a local village center than navigate through sprawling parking lots and mind-numbing malls.[5] Real estate developers are helping retailers move into village Main Streets in suburbs like Bethesda, MD, Westport, CT, Arlington, VA, and Brookline, MA. These investors and large retailers are rediscovering that shoppers prefer the value in being outside on a street filled with pedestrian activity on a nice day. That is why in our region's small

[3] Influence of Land Use Mix and Neighborhood Design on Transit Demand, TCRP Project H-1 Transit and Urban Form, Parsons Brinckerhoff Quade and Douglas Inc., Dr. Robert Cervero, Howard/Stein-Hudson Associates, Inc., Jeff Zupan, August 1995.

[4] Loudon County General Plan 1990-2010, Loudon County, Virginia.

[5] "More Stores Spurn Malls for the Village Square," Mitchell Pacelle, Wall Street Journal, February 16, 1996, p. B1.

town and village centers in places such as Greenwich, South Norwalk, New Canaan and Westport have become popular places for restaurant-goers, shoppers and visitors.

An important component of transit-friendly communities is a viable commercial district that serves the local demand for dry cleaners, groceries, shoe repair, restaurants, book stores, cafes and, in some cases, movie theaters. Towns ranging from small shopping and restaurant districts in Darien, CT, to larger downtowns of Hempstead, Long Island, are repositioning their retail not to compete directly with regional malls but to fill niches ignored by large malls and serve local needs and services. The uses themselves will not revive a village's retail street; they need to be supported with attractive and inviting public spaces, sidewalks, pedestrian-oriented streets, and well-designed and strategically placed parking. These are essential elements of a transit community. The station itself can be a catalyst for economic development in a village center.

DENSITY

Studies have shown that vehicle miles traveled per household increases as densities and access to transit, shopping and pedestrian friendliness decrease. John Holtzclaw conducted a study for the Natural Resource Defense Council to determine residential development patterns and access to transit decreased auto dependence. His study evaluates the effects of neighborhood characteristics on automobile usage and total vehicle miles traveled annually. Four key factors were considered in evaluating several communities in Northern and Southern California.

1. Residential density: the number of dwelling units per residential land area.
2. Transit accessibility: an index of transit accessibility is defined and measured for the neighborhoods under study.
3. Neighborhood shopping: an index is developed that defines the ability to perform neighborhood shopping errands with a short walking trip from a home.
4. Pedestrian accessibility: factors that encourage or discourage walking are combined into an index that is quantified for the neighborhood under study.

While looking at 28 neighborhoods in San Francisco, San Diego and Los Angeles, Holtzclaw found that the densest communities had the lowest auto usage per household. His study confirmed the results of previous studies that suggested residential density as a critical variable in explaining variations in automobile usage. As with previous studies, Holtzclaw found that a community with double the housing density will have 25%-30% less driving per family when the impacts of access to transit, to shopping, and pedestrian friendliness are included. After density, the only other variable that proved to be statistically significant in determining auto use was accessibility to transit. A point of note is that income levels proved to be insignificant.

The density levels examined here are not at the rate of monolithic high-rise developments. For example, the densities for the 11 multi-family projects built during the past five years within a quarter-mile radius of a Bay Area rail station ranged from 18-to-60 units per acre. The developments studied consisted of attached single-family homes such as row houses, duplexes or four-plexes ranging to mid-rise residential developments that were three-to-six

stories with lobbies and elevators. Appropriate residential densities would depend highly on the context of the station area, and densities would have to be adjusted to fit into the existing community. Development could also occur on vacant lots, parking lots, and other under-used land around transit stations. The pedestrian and commercial activity of these denser areas enhance their sense of community, public spaces, excitement and livability. As the areas immediately around the station improve it will cause a ripple effect that improves the outlook in the rest of the municipality. Examples of this are evident in Norwalk, CT's efforts to redevelop downtown South Norwalk, and in Elizabeth, NJ, with its efforts to develop housing and commercial activity around its station.

Although density of residential units per acre is the single most important factor in influencing transit use, built environments of higher density housing and mixed uses require careful design of public spaces such as streets, plazas, sidewalks, transit stops and ground floor uses. Designs for higher density housing, especially in suburban settings, need to be more mindful of the local architectural character and the pattern of development must be focused on creating a welcoming pedestrian environment.

PARKING

While adequate parking needs to be provided in the transit community, existing parking resources need to be intelligently managed. The allocation of parking resources should account for the fluctuating needs of the downtown area and rail commuters. Some parking could be counted as commuter parking during the week when there is higher demand for parking for station users. Those same spots could be counted as commercial parking during evenings and weekends when visitors to the commercial district increase.

The village of Katonah in Bedford Township, NY also allocated parking around its downtown to address parking capacity and traffic congestion issues. Rather than expand parking in the downtown area and worsen traffic congestion, the Town of Bedford moved non-town commuters into a separate lot outside the commercial district which was once used as a Highway Department equipment storage area. In addition, the five-minute walk from the non-resident parking lot to the station is pleasant and clearly marked. Also, to be effectively managed to benefit visitors, shoppers and residents, it should not be provided or managed solely by individual retailers but by or in cooperation with a parking authority or the municipality.

DESIGN PRINCIPLES

The goal of transit-friendly communities is not solely to improve access to public transit ridership, but also to build communities. To successfully accomplish this, a community's essential elements must be designed to support pedestrian activity and reinforce a sense of community through design that is sensitive to human scale and activates the sidewalks with pedestrian activity. To encourage commuters to rely on alternative modes rather than the car to get to the rail station, the physical environment needs to be designed to support pedestrian and bicycle, as well as bus access. Transportation planners have long known that rider's experiences in traveling from their origin to transit or from transit to their destination weighs heavily in their choice of transit. The to/from experience, whether on foot, by bicycle, by other transit vehicle, or by auto, can be critical in gaining new riders or keeping existing ones. It can be helpful to determine the type of station so that access is created that is appropriate to the station. Not only should the rail station have pedestrian linkages to residential areas, but there should also be convenient linkages to recreation, public spaces, community facilities and local shops.

Public space design techniques such as upgrading sidewalk amenities, introducing public art and facade improvement can be applied throughout the commercial district and at the rail station to improve the comfort and attractiveness of these places for residents and visitors. Design is also critical in addressing how different uses such as commercial and retail are combined. Good design and landscaping can also handle compact residential development in a gracious manner. The following are design principles that should be incorporated to create a successful transit-friendly community.

TRAIN STATION DESIGN

Communities and transit agencies need to rethink the function and role of train stations and intermodal centers. Rail stations are not simply transit facilities where commuters catch the train. They can be economic development catalysts. Station and station parking facility improvements can create momentum for the revitalization of an adjacent commercial district or residential neighborhood. NJ TRANSIT, through its innovative Station Renewal Program, is working with local communities to improve the condition, appearance, uses, and management of its train station. The objective is to better serve its riders, encourage ridership, and act as catalysts for revitalization in the communities in which they are located.

Several stations located in urban settings, such as Bridgeport, Newark, Stamford or Jamaica, are large enough to accommodate a range of retail shops and cafes to turn them into multi-purpose facilities. Stations around the region have been converted into art centers, community centers and retail stores, providing services such as newsstand, coffee shop, dry cleaners or shoe repair that are valuable services for commuters. Stamford Station, for example, is now being redesigned so that a pedestrian access road through a parking lot under Interstate 95 is being replaced with an enclosed pedestrian arcade, lined with shops on both sides. Grand Central Terminal in New York and Union Station in Washington, DC are prime examples of larger stations that offer a mixture of uses that attract a variety of users in addition to daily commuters. Grand Central is now being renovated to provide a major expansion of commuter retail services. By introducing other uses into these stations, they have been transformed into centers of activity.

Design improvements that make stations more visible and physically integrated into the surrounding community can also

turn a station into a more positive feature. To further encourage transit ridership, services, trains and stations need to be pleasant and convenient to use. A poorly designed station often leaves transit users with a negative impression and can arouse fears of crime. The South Norwalk station in Connecticut is one example of such a case. It was an old station along the New Haven Metro North Line that was located in a crime-ridden area and was dilapidated after years of neglect. Commuters said they never felt safe at the station because it was dimly lit, dreary, and depressing.[1] The most disturbing part of the station was the tunnel that connects the eastbound and westbound platforms. This graffiti-filled tunnel was closed late at night to prevent criminal activity, forcing late night train riders to walk 800 feet out of their way to get to the other side.

Figure 12. Peekskill Station

Figure 13. Scarsdale Station

Figure 14. South Norwalk Station

[1] "Train Station Arouses Fears and a Plan to Allay Them," New York Times, Friday, January 22, 1993, Sec., B p. 5.

In the spring of 1993, the City of Norwalk, using state and federal grant money, renovated the station, built a multi-level garage on the westbound side and renovated the tunnel. Patrolled by a private security force and an electronic security system, the security presence is a critical factor in allaying commuter fears. More importantly, the design improvements contribute to the sense of security by introducing other uses into the stations such as a dry cleaner, ticket office, security office and a community center.

STREET AND PUBLIC SPACE DESIGN

Transit-friendly communities must have well designed amenities, streets and public spaces in the areas around their downtown stations. Urban designers consider streets and other public spaces to be "urban rooms," which require as much thought and attention as the design of interior spaces. Well-designed rooms have attractive doors, walls and windows. Well-designed streets have entrances, streetwalls, and vistas that amuse, fascinate, protect, and serve people. In a room we may have furniture, such as a bed, sofa, or lamp. On a street, there is also furniture—a bench, kiosk, or streetlamp—that requires good urban design. And just as an architect will lay out the rooms in a house to provide a certain type of experience or function, so good urban design will lay out the streets and destinations of a town to reinforce certain experiences or functions.

There is no question that revised zoning, planning policies and incentives have directly contributed to transit-oriented development around rail stations in places like Pleasanton, CA, Rosslyn-Ballston, VA, and Crystal City, MD. However, whether these are desirable places to live or work is debatable. It is not enough to have transit-oriented development; the surrounding area and the linkages to the station at the ground level have to pedestrian-friendly rather than be dominated by expansive streets filled with cars. In this region, Bridgeport and Stamford, CT, and Newark, NJ, have major rail stations and are adjacent to commercial office districts, but the environment is dominated by traffic and the streets are pedestrian unfriendly. These are not pleasant places to be nor are they truly transit-friendly communities.

Figure 15. Public space, Katonah, NY

The streets and sidewalks should be designed to create an environment that encourages pedestrian activity. Most importantly, streets should allow not just for the flow of traffic but for safe pedestrian crossings, be pleasant to walk along, and allow for bicycle traffic. "Traffic calming" techniques can be implemented to improve the design of the

streets to make them more welcoming, safe, and attractive for bicyclists and pedestrians.

MAIN STREET DESIGN

An important component of a complete transit-friendly community is the commercial core of local shops and services. It should be anchored by a retail street with a mixture of dry cleaners, grocery store, shoe repair, bookstore, restaurants and movie theater, which allows residents to run small errands within walking distance during the weekends, on the way to work or on their way home.

Figure 16. Retail street, Scarsdale, NY

The streetwall along the sidewalk should be continuous with display windows and not interrupted by curb cuts and parking lots. In fact, parking areas should be located behind the buildings rather than in front to avoid a strip mall atmosphere. Also, only uses that generate pedestrian activity should be placed on the ground floor.

Uses such as offices should be placed on the second level whenever possible. In Katonah, NY, property owners have located travel agents and brokerage firms on the second floor of buildings while placing active retail uses along the sidewalk. Streets with monotonous or uninspired building frontages are not appealing to the pedestrian, which makes walking in the core area less desirable. Buildings should contain street-level windows with arcades, porches, bays and balconies.

The streets themselves should be designed to cater to the needs of pedestrians and bicyclists. It is critical to create a pedestrian-friendly atmosphere while still providing access for vehicles. This can be done by providing amenities such as benches, waste receptacles, kiosks, distinctive bus stops, attractive sidewalk and street paving, lamp posts and bicycle racks. The street can be designed using “traffic calming” techniques to slow cars down to walking speed to create a safer environment for both pedestrians and bicyclists. These techniques include neckdowns, paving material and angled parking.

To make Main Street a center of activity in the community it needs to be an attractive and pleasant place to visit. It needs to be a place one would visit because they want to, not because they have to.

PARKING

Integrating parking into the transit community is a challenge. To provide adequate parking without drowning

the area around the station and commercial district in a sea of surface parking is no small task. Special design elements such as low walls and landscaping along the edges and within parking lots makes them more attractive and pleasant places. Large lots with several curb cuts are not conducive to creating a pedestrian-oriented environment. Villages like Hempstead have proposed placing some retail along the edge of parking lots to establish a streetwall. In the commuter lot adjacent to the Hempstead station there will be a small structure for a taxi dispatch. These extra activities in an otherwise empty parking lot generate some pedestrian activity, but also serve as "eyes on the street" that provides an extra sense of security.

Figure 17. Parking Facility, South Norwalk, CT

Multi-level parking garages need to be appropriately scaled to fit into its surrounding context. For large structures, the ground floor level facing the street could be filled with storefronts to create a more friendly presence on the sidewalk. Also, architectural treatment and detailing could be used to help the structure be less intrusive and improve its appearance.

Parking garages tend to be large structures that need to be designed to fit the scale and character of its surrounding area. The Huntington, NY and South Norwalk, CT stations have large parking facilities that dwarf the historic stations. Other stations like Stamford have integrated the garage and station. A multi-level parking facility can be an asset for the adjacent commercial district by infilling the ground level with retail uses. While it could provide much-needed parking for commuters during the week, it could serve shoppers and visitors on weekends and late evenings when the facility is not often used by daily commuters. To integrate garages into the surrounding commercial district it needs to serve multiple purposes.

DESIGNING COMPACT RESIDENTIAL NEIGHBORHOODS

Compact residential neighborhoods are a critical component of a successful transit-friendly community. Research supports the notion that dense neighborhoods adjacent to retail uses and public transit actually have lower VMT totals than suburban sprawl communities. Also, well designed and thoughtfully sited clustered housing can create neighborhoods with a strong sense of community without overcrowding.

The Urban Land Institute, a national real estate industry group, has found that sales of high-density single-family detached houses and cluster developments (14 units per acre) in communities in the West have been strong for some

time, and the East Coast is just starting to see interest from the mass market.[2] This trend is attributed to the changing demographics of households, which are no longer conventional "Ozzie and Harriet" families. There are a growing number of singles, empty nesters, divorcees and single parents no longer interested in single family detached housing. People are also seeking convenience and low-maintenance living situations where the quarter-acre lawn that needs tending on weekends is not necessarily an amenity.

There is resistance conceptually to higher density because it is equated with lower quality and images of overcrowding. In fact, well-designed clustered developments are attractive and often priced at market rate. In order to ensure good quality developments that contribute to the pedestrian environment, municipalities need to actively review site plans and designs, since higher residential densities require higher standards of architectural design and more user friendly public spaces. Although there are cases such as Scarsdale where community concern over the scope of development and density has delayed projects, there are also cases where planning boards have worked closely with the community and the developer to ensure that local concerns are addressed and principles of high design standards are adhered to.

The Old Green Gables condominium development, built on a former 16-acre factory site, is a case in which the Town of Greenwich planning board worked closely with the developer to implement a quality transit oriented residential development with a density of 10 units per acre. The planning board worked with both the local community and the developer to ensure that the project addressed the concerns of local citizens such as access to rail station, density, landscaping, siting and parking issues. The project, completed in 1992, has 167 market rate condominiums, of which 90%, or 151 units are occupied. Residents are mostly empty nesters and retirees, while there has been an increase in newly married couples without children. And, one reason residents cite for choosing to live in this development is its proximity to the Metro-North station and to downtown Old Greenwich.

Figure 18. Greenwich Gables, CT

[2] Urban Land, Urban Land Institute, February 1996, pp. 25-28.

THE STATE OF TRANSIT - FRIENDLY COMMUNITIES IN THE REGION

RPA, through research, surveys, interviews, site visits and case study charrettes, has attempted to assess the state of transit-friendly communities in this region. Although there are efforts underway by both local communities and transit agencies to implement transit-friendly improvements, there is much more to be accomplished. In other regions around San Francisco, CA, San Diego, CA and Portland, OR, local planners and transit agencies have been actively promoting and planning transit-oriented development. San Francisco's BART system views their stations as opportunities to stimulate economic development activity.

Our region, with 394 stations and one of the world's most vast commuter rail systems, has a significant number of places where transit-friendly improvements and developments could be implemented. And, the transit agencies and rail communities in this region are just beginning to catch on to the concept of transit-friendly communities. This growing awareness is evident in several places: NJ TRANSIT, with its transit-friendly land use handbook for communities, and Metro-North with its current transit-friendly efforts in Wassaic and Harrison.

There are examples of rail stations that have been more effectively integrated into the community by landscaping parking lots, introducing retail and restaurant uses into its station facilities, and working with communities to strengthen pedestrian access to the station. NJ TRANSIT with its Station Improvement Program, has worked with several communities, including Netherwood, Bradley Beach, Woodbridge and Maplewood, to upgrade station amenities and signage, introduce new uses at station buildings, and work with local communities to improve the pedestrian environment around the stations.

But there are still many more local municipalities that are not aware of how transit-friendly improvements can help revitalize the area around rail stations. Often towns with rail stations fail to identify the area around stations as special districts requiring zoning ordinances that support dense residential, mixed-use retail, and pedestrian-oriented street designs. There are also cases in which improvements made by the town in the station area are not coordinated with station facility and parking improvements made by the transit agencies. A transit agency's efforts to improve station facilities should be coordinated with adjacent downtown revitalization efforts.

At the state level, Connecticut and New Jersey have policies that encourage development along commuter rail corridors and land use patterns that will maximize public transit use. However, these policies are advisory and have no enforcement powers. Therefore, the responsibilities of implementing these policies rests with local municipalities and transit agencies.

New Jersey's state plan also recognizes the need to balance land use, transportation and open space needs in an environmentally sensitive manner. Furthermore, they recognize that transit-friendly communities can be a tool for achieving this balance and a way of managing growth. Within New York City commuting statistics are unique: 76% of the population gets to work by alternative means, such as public transportation, bicycling and walking. In contrast, in suburban counties such as Nassau, served by multiple lines of the Long Island Rail Road and Long Island Bus routes, 68% of the working population drive to work and only 13% commute by train. Even in Fairfield County in Southwestern Connecticut only five percent of the workforce commutes by train. The challenge is to increase public transit's market share of commuters in these outlying suburban counties. One strategy for increasing ridership is to provide an opportunity for more people to live within walking distance of a rail station. San Francisco's transit agency, Bay Area Rapid Transit (BART), has demonstrated that residents living in proximity of their rail stations are more likely to use public transit.

In most cases, except for Elizabeth and Hempstead, the station is not the catalyst or the center of revitalization efforts. Towns are struggling to create vibrant commercial areas rather than coming up with comprehensive strategies to create transit communities. They have the elements of pedestrian sidewalk improvements, facade improvement programs, station renovation or re-use, but rarely tied together as an overall effort to strengthen or create a transit district. Although a possible result of market forces, the creation of a concentration of residential projects is missing.

CHARRETTES

Taken from the French word for "cart," into which architecture students used to throw their work as it was collected for review in the neo-classical schools of design, charrettes are intense surveys of a community's architecture and urban design. The idea is to bring together a group of experts and hold an intense design review examination of a community over the course of a few days, complete with input from citizens, civic leaders and public officials. The team will hear presentations on aspects of a community, tour the site, and then proceed to brainstorm on ideas to improve the quality of the built and natural environment. While the recommendations that a charrette team presents after a few days of complete immersion in a community do not carry the weight of law, they may be able to bring up new issues or reinvigorate old ideas about the design, character, and direction of a community. Charrettes have become recognized as useful tools in stimulating community discussion and "jump-starting" a longer process of planning and review that can help a community revitalize itself.

RPA has led charrettes in downtown Yonkers and the town of Princeton Junction to promote transit-friendly concepts and plans and to provide models for creating a community participation process to plan. These charrettes also served as vehicles for gathering information about local concerns and desires. The findings from these two charrettes are summarized below. While the Yonkers case study was organized as a traditional charrette, the Princeton Junction case study was an opportunity to use computer technology to simulate a proposed town center adjacent to the Princeton rail station.

Downtown Yonkers

RPA, in cooperation with the City of Yonkers, coordinated a case study charrette for the downtown Yonkers station area. Yonkers offered a unique opportunity to apply transit-friendly principles to strengthen the connections between the rail station to downtown Yonkers and to the waterfront. By harnessing the downtown's role as a transit center, Yonkers could become a more livable urban center.

The charrette process was a collaborative effort that brought together a team of planners, urban designers, and transportation and municipal regulation experts to the downtown Yonkers station area for four days. In addition, various transit providers and public officials, including Metro-North Commuter Rail Road, Westchester County Bee-Line system bus service, and City of Yonkers officials were gathered to discuss transportation and land use relationships in the study area. The case study area encompassed Larkin Plaza and its surrounding streets, the train station, bus plaza, lower Main Street, and Warburton Avenue from Main Street to Manor House Square.

During this time, the team gathered issues and ideas from community groups, property owners, merchants, and public officials. Through a process of extensive meetings with more than 100 area residents, merchants and officials the team formulated a series of recommendations to develop the area as a transportation, commercial and recreation center.

Figure 19. Yonkers Station

The transit recommendations included:

- Change zoning ordinance to encourage mixed-use and a more urban land use pattern, building on the recommendations of the 1990 Downtown Master Plan.
- Ground the strategy for developing waterfront activities by recognizing that existing direct, safe, convenient transit access to potential boating and waterfront

recreation distinguishes it from virtually any other marina/recreation in the region.

- Identify Larkin Plaza as an urban amenity and gateway to the waterfront area and to the train station by removing trees in the center of Larkin Park in order to make the station more visible.
- Re-establish the train station as a civic symbol and functioning intermodal transportation center for the waterfront area by creating a large public space in front of the main entrance. Add an information kiosk identifying the waterfront area, bus routes, historic buildings, and existing and proposed cultural institutions and merchants within a quarter-mile of the station.
- Clearly designate pedestrian paths between station, bus, and Trolley Barn Plaza along Main Street, Recreation Pier and future ferry service area.
- Improve station and immediate station area by expanding the station's role as a center for the community by encouraging tenants that provide a full range of services.

The Downtown Yonkers Station Area Charrette, conducted by RPA, focused on the Metro-North Commuter Railroad's Hudson Line station at Larkin Plaza. The charrette team also suggested that improvements be made in three phases. The report suggested that the city should retrofit Larkin Plaza as the gateway from the rail station to downtown and to the waterfront within one-to-three years. In addition, zoning should be amended to allow for more mixed uses for the station area and the rail station itself should be revitalized. In phase two, within four-to-seven years, the city should improve Larkin Plaza and the train station, as well as the old Trolley Barn. Finally, the group suggested eliminating parking from Larkin Plaza or limiting it to short-term parking. All of these recommendations tie in to the city's overall plan to revitalize the waterfront area.

Figure 20. Simulation model

The city administration has focused much of its economic redevelopment efforts on the downtown and waterfront areas in order to make the city more inviting and pleasant for residents and visitors while increasing the tax base, enabling the city to provide more and better services for everyone.

Princeton Junction

This was an opportunity to apply computer simulation technology to an actual transit site, Princeton Junction in West Windsor, NJ. This project employed a "Suburban Centers Kit of Parts," a computer application that creates a

perspective illustration of how a town could look if developed according to particular zoning codes. The application is interactive, so views of the town can be changed on command and different development scenarios can be displayed. It is a tool that can help communities visualize the impact of zoning codes in three dimensions.

Figure 21. Princeton Junction aerial

Princeton Junction was chosen for several reasons. There continues to be significant growth in the area which needs to be directed. The most recent growth in West Windsor and the entire Princeton Route 1 Corridor has not been in centers, but rather in campus-style office parks, retail malls, pod-style townhouse condominium developments, and post-World War II-style single-family subdivisions. The township already has millions of square feet of commercial office space, a busy commercial strip, and a residential population that grew from 8,500 in 1980 to 16,000 in 1990, yet no discernible center.

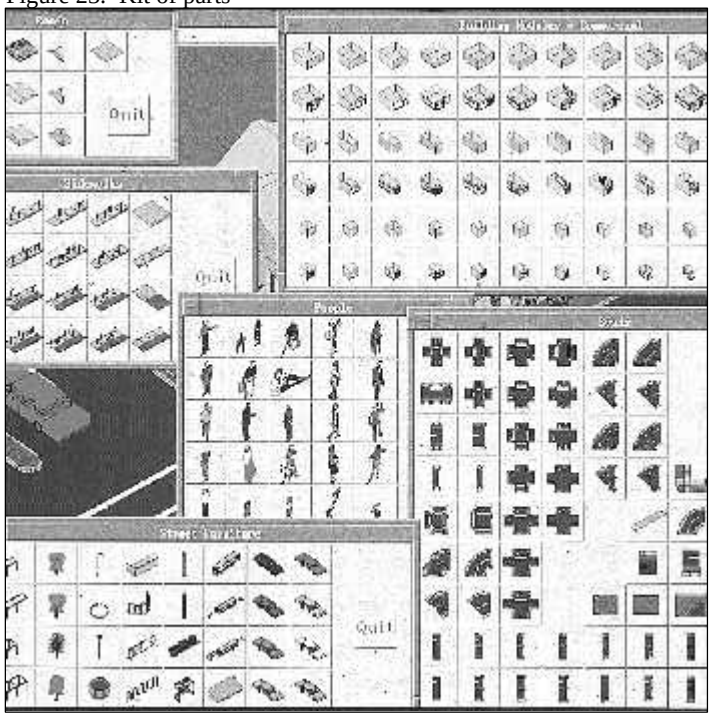
If West Windsor is to have a center, Princeton Junction should be it, with the potential to serve both local and regional needs. It is a crossroads, on the most highly traveled railroad corridor in the United States. The Junction is already a "center" for the thousands of commuters who use the station each day, whether they walk, drive, take a shuttle bus, or ride the spur train, the "dinky" that runs from the Princeton University campus to Princeton Junction. Just to the east the Route 571 strip is a contemporary "Main Street" for shopping, while to the west, between the station and Route 1 and along Alexander Road, is a growing agglomeration of office buildings.

Within a half-mile radius of the station itself, Princeton Junction presents virtually every kind of suburban design challenge: to retrofit a suburban strip of grocery stores, gas stations, and professional offices; to let in pedestrians; to connect it to transit; to enhance it visually and functionally. To the south, there is an intact single-family neighborhood, many of whose residents walk to the station for their rail commute. To the west, there is a commuter parking lot with free-standing office buildings close by (which could be better connected to each other), the commuter rail station and the retail area. And, the station itself: How can its attractions be harnessed to serve as a focal point rather than just a parking lot and drop-off point?

Figure 22. 3-D Corner simulation

West Windsor had already sponsored and adopted a "Princeton Junction Town Center Plan" (Lenaz, Mueller & Associates, Planning Consultants) in May 1992. This excellent plan, which incorporated a host of pedestrian and transit-friendly planning and design ideas, was developed through extensive community review and discussion about the town center idea and the expansion of Route 571. In addition, the center was conceived as being in accord with the "town center" definition in the New Jersey Development and Redevelopment Plan. Thus, it is potentially the core of a municipality designated "center," which could lead to support for infrastructure and other costly improvements.

Figure 23. Kit of parts



The most promising aspect was how a center, as described in the Princeton Junction Plan, could be the physical connection between the strip "Main Street" and the station. This connection offered a chance to modulate a series of land use/transportation relationships from car to pedestrian to rail.

The plan emphasized these points:

- Link land use with transit.
- Provide for integration of both sides of the station.
- Encourage mixed use.

- Emphasize creation of a pedestrian-oriented town center.
- Ensure the preservation of important natural resources located near the site.
- Preserve the established residential neighborhood adjacent to town center core.
- Provide for road and bridge improvements that support rather than discourage pedestrian movement.

The town recognized that they had little idea of how the "town center" they had authorized would look or function. They welcomed the idea that their two-dimensional "plan" could be further articulated as a three-dimensional "design."

Figure 24. Computer simulation, Downtown view

Without further articulation, the town center plan would remain a sub-element of the master plan, but would never be written into a zoning "overlay," and would ultimately never be realized on the ground. An AES computer graphics application at the New School of Social Research's Environmental Simulation Center was used to create a three-dimensional representation of the adopted town center plan. The computer simulation was an exciting and effective tool, not only graphically displaying the impact of height, bulk, and programmatic alternatives but also calculating important data such as parking requirements for each scenario.

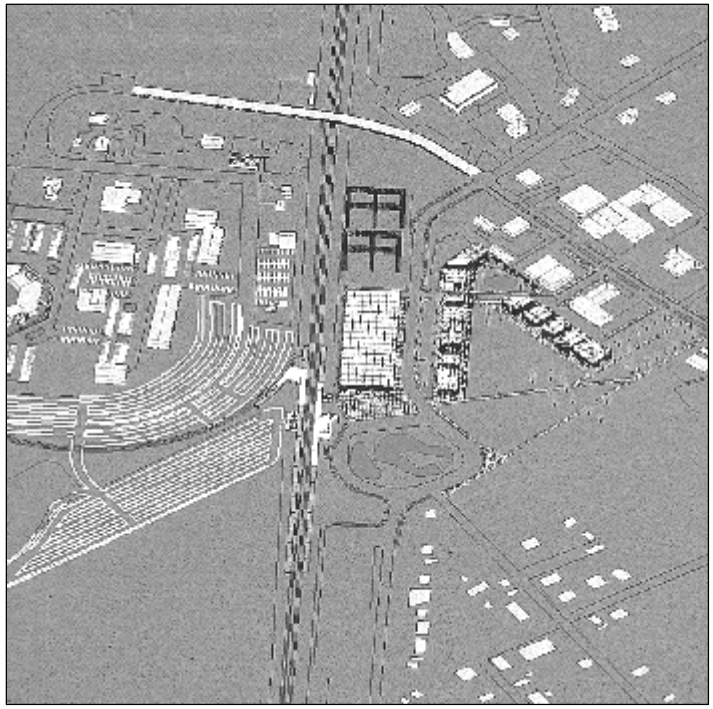


Figure 25. Computer simulation aerial

Conclusion

In the final analysis, both the Yonkers and Princeton Junction projects demonstrated some considerable successes, but also highlighted the obstacles to designing and implementing plans for transit-friendly communities. While both projects succeeded in highlighting issues and community views, neither one ultimately led to a process that seems to be moving toward new design guidelines and redevelopment of the areas around the towns' stations. In Yonkers, the city planning department went through a period of turmoil and new political leadership came in. In Princeton Junction, under a new administration, town officials retreated from the intention of the plan to focus on a multiple retail centers plan and opted instead for a standard suburban development plan. The technical goals—demonstrating alternatives to suburban development patterns—were successfully accomplished. But convincing communities to adopt the necessary changes proved to be too difficult. Local concerns, often described as Not In My Back Yard (NIMBY) reactions to proposals, are significant obstacles to regional planning issues, including transit-friendly development strategies.

IMPLEMENTING THE VISION

Through observations of station area improvement efforts and discussions with municipalities throughout Long Island, the Hudson Valley, Connecticut and New Jersey it has become clear that there are as many challenges as there are opportunities in developing transit-friendly communities.

The mounting regulatory and public pressure to address VMT growth and auto dependency has created an opportunity to promote and implement transit-friendly principles throughout the region. Changing demographics, busy lifestyles, and shifting housing needs that stress convenience have created a market for compact residential developments that are accessible to public transit. Some of the shifting regional trends have highlighted the need to integrate land use planning more closely with public transportation in order to preserve the quality of life in this region. Because of the potential benefits of transit-friendly communities, these regional trends have created an opportunity for implementing transit-friendly improvements. Transit-friendly communities are uniquely designed to encourage public transit usage, reduce auto use, and revitalize the local downtown area.

Along with the opportunities, there are several hurdles to transforming existing station areas into truly transit-friendly communities. Many of the areas around the region's commuter rail stations are mature suburban communities that have existing residential neighborhoods and often a shopping district of some size within the station area. Implementing transit-friendly improvements in these places raises local community concerns such as density, increased traffic congestion, effect on local services and taxes, parking, and impact on quality of life in the community.

There are three major challenges to implementing transit-friendly communities. First, the car has become the preferred mode of travel and the challenge is to provide a practical and attractive alternative. Second, existing zoning ordinances covering areas around rail stations prohibit the implementation of transit-friendly principles. Third, the acceptance of higher densities and concentrated development around stations has run into community opposition.

Despite the recognized benefits of mixed-use, moderate-density, pedestrian-oriented communities that are serviced by transit, development has been hampered by limited financial resources and NIMBY-ism against dense residential development. Transit-friendly communities can be realized through new and creative use of private financing techniques, public-private partnerships, and community-lending practices. A variety of financial, mortgage and tax incentives should be provided at the local level of government to promote these new partnerships with the financial community. Federal policy through its strong role in transportation funding also has a role to play. Modifications to existing ISTEA (Intermodal Surface Transportation Efficiency Act) rules, for example, could serve as incentives for communities to take action on transit-friendly development in order to qualify for additional transit funding.

The future success of the region and its rail system hinges on our ability to reinforce and revitalize traditional community centers. One of the key strategies will be promoting transit-friendly development around transit stations. Residents of mixed-use, moderately dense, pedestrian-friendly communities with attractive pedestrian access to the rail station are more likely to use public transportation and are less dependent on automobiles. In the process of retrofitting existing rail communities into transit-friendly places, these areas will be strengthened, creating town centers with viable retail streets and neighborhoods that are attractive and pleasant places to live as well as to visit.

The vision of transit-friendly communities:

- Integrates the rail station facility into the town center and strengthens pedestrian-friendly links to surrounding residential neighborhoods.
- Promotes land use patterns and residential densities that maximize the use of commuter rail service and reduce the dependence on automobiles.
- Provides another option in the menu of places to live in the region.
- Encourages the centering of suburban development into areas around rail stations and strengthens existing retail and residential areas around the region's rail stations.

RECOMMENDATIONS

The following are recommendations for several initiatives that transit agencies, state officials, local municipalities and communities in the region could consider in order to encourage land use patterns which increase transportation efficiency and encourage transit use. RPA recommends that the following five major actions be undertaken:

Identify Existing and Planned Station Areas

Many of the towns along the region's commuter rail system have the foundation to become transit-friendly communities by implementing transit-friendly improvements that include strengthening pedestrian corridors to the station and the local shopping area and identifying potential sites for mixed-use or clustered residential development.

Although much of the residential market had disappeared in the region in the late eighties and early nineties, there are signs that the residential market is improving. Residential projects are being proposed in Elizabeth, NJ, Scarsdale, NY, and Hempstead, NY. According to a study by Robert Cervero, many proposed residential projects to be developed on transit district land have not moved forward due to neighborhood opposition to higher densities, the collapsed real estate market in the late 1980s, and the difficulty of obtaining financing for multi-family housing projects near rail. (Cervero, Bernick March 1994.)

This new niche in the residential market reflects the changes in the way people live and the changes in households. Fewer and fewer households resemble the prototypical "Ozzie and Harriet" family made up of a set of parents, two kids and a dog. Clustered housing in proximity to the Main Street area and the rail station offer benefits that meet the needs of changing demographics. For households with two income earners with busy lives and empty nesters looking for a lower maintenance lifestyle, clustered developments located within walking distance of a rail station and

shopping fulfills the need for convenience. For these particular segments, it also improves their quality of life and they enjoy the stronger sense of community.

Communicate with Local Communities to Gain Public Support

RPA, in partnership with transit agencies and state officials, should communicate with local planning officials, elected officials, and citizens about the concept and benefits of transit-friendly communities to gain public support. And, more importantly, work with the community and stakeholders to develop station area improvement plans with supporting zoning language.

The challenge here is to illustrate to mature suburban communities where the opportunities lie for transit-friendly improvements and transit-oriented developments, and that higher residential and commercial densities can be designed to be sensitive to existing context. Because there is an unfounded fear of density, communities need to be shown that when designed well, density can create pleasant and comfortable environments that create a sense of community. Also, there may be more acceptance of increased housing densities in station areas if it is balanced by density decreases elsewhere.

Despite the recognized positive impacts of transit-friendly developments, much of this development has been hindered by the threat of the "Not In My Back Yard" syndrome toward higher density residential development. It has been shown that higher residential densities create higher potential transit ridership and also provides the consumer base needed to support the local commercial district within walking distance of many of the residents.

For the past 26 years, the Village of Scarsdale has been debating how to redevelop a portion of its downtown that is both adjacent to its rail station and gateway for the Village. The Village had always envisioned a residential development with ground floor retail for the site. Penn Central proposed a 150-unit condominium development with 22,478 square feet of retail and other commercial space and parking for 539 cars.

Despite its Tudor style, in keeping with the predominant architectural style of the buildings downtown and its set-aside units for the elderly, there has been community opposition to the height and density of the development. There was a fear that this project would "urbanize" the Village. Penn Central has recently submitted a scaled back development proposal for 90 units of senior assisted housing units and some retail space. At this point, the project is still in review and the site has not been developed.

This case reflects the serious concern communities have regarding the scope of development and the impact of increased density. However, this hurdle can be overcome by showing communities that density can be handled graciously by good architectural and landscape design. Communities need to be shown that higher design standards can ensure that the community's character and vision are preserved. In the past higher densities have been associated with mammoth-sized housing complexes and large office buildings. Higher densities can be handled to fit the context of the suburbs with higher design standards and closer

attention to the public spaces such as streets, sidewalks and open spaces.

Develop Station Area Plans and Design Guidelines
Towns with residential and commercial development around its rail station should designate them as a transit-friendly districts. Plans and design guidelines should be developed describing the vision for the district and encourage transit-friendly improvements. Municipalities should designate at least the area within a quarter to half-mile radius of the rail station as a transit-friendly overlay district with ordinances and zoning regulations that encourage pedestrian-friendly development and community design.

In addition to a station area plan, design guidelines should be adopted to guide design review. The objective of design should be to improve the overall pedestrian environment in the station area to promote walking and bicycling. Design guidelines are also critical in establishing stricter design standards for higher density residential developments. Not only is the review of architectural features critical, but so are review of site and landscape design. Towns should adopt zoning regulations that will enforce its objectives.

Often municipalities do not allow the mixed use or residential densities that are required for successful transit-friendly communities. In fact, some places, such as Pleasantville, NY are considering downzoning its residential regulations from multi-family housing to single family homes. What they should, in fact, be doing is upzoning to create more residential units in the downtown area, adjacent to the rail station.

With a larger number of residents within walking distance of a station there will be a larger pool of potential transit riders and customers to support the local commercial district. Both New Jersey and Connecticut encourage the formation of a special district around rail stations to implement transit-friendly objectives. The station area plan that focuses on the special objectives of the station district can be adopted as a land use element of the local comprehensive plan.

Encourage Transportation To Agencies Adopt Transit-Friendly Community Policies
Long Island Rail Road, Metro-North, and NJ TRANSIT should promote transit-friendly communities around their facilities. San Francisco's Bay Area Rapid Transit system (BART) for example, actively promotes transit-friendly development around the BART system. Transit agencies can generate revenue from developing properties and parking lots adjacent to rail facilities. In addition, by increasing the number of residents living within a quarter-mile radius of its stations, the potential market of transit users will expand, generating additional farebox revenue. As new workplace destinations are created along its transit corridors, there is an opportunity to expand its reverse commute markets, which is already Metro North's fastest growing market.

Transit agencies need to engage groups and town governments to implement transit-friendly improvements. NJ TRANSIT has adopted a community participation process in which it guides improvements in towns surrounding its stations. It has published a handbook, "Planning for Transit-Friendly Land Use," for towns and

residents that wish to implement transit-friendly land use plans around their transit stations.

Transit agencies need to be supportive partners in helping towns surrounding stations with transit-friendly efforts. For example, NJ TRANSIT's handbook for communities, "Planning for Transit-Friendly Land Use," was published to assist elected and appointed planning officials, members of planning and zoning boards, technical planning staff members, community representatives, and individual citizens interested in improving the relationship between land use planning and transit. While it is generally recognized that transportation and land use planning need to be integrated to realize the enormous potential of public transportation, a coordinated effort between municipalities and transit agencies needs to be aggressively pursued. Only through coordinated efforts will transit agencies be able to increase ridership and municipalities be able to deal with traffic congestion and the need for economic development opportunities.

The incentive for transit agencies to participate in development of transit land is the generation of revenue. Promoting development around stations can also increase ridership while reducing vehicle trips to the station. And, by creating a mixed use community around a station, it increases its safety and attractiveness. In this way the station becomes a focal point for development.

Establish State and Local Programs for Transit-Friendly Development

Both Connecticut and New Jersey have state policies that encourage initiatives to improve the relationship of transportation and land use decisions with particular emphasis on directing new industrial, commercial and residential development to transit-accessible locations. However, in both states these are simply general guiding principles for the administrative and programmatic actions and capital and operational investment decisions of state government. New York State currently does not provide communities with guidance on the implementation of the land use regulatory powers it delegates to them.

There are immediate steps that can be taken at the local level that do not require a plan for development or zoning amendments. Retrofitting public spaces such as streets, sidewalks, and areas immediately surrounding the rail stations to make them more pedestrian-friendly can begin the process of transforming a station area into a truly transit-friendly community. Pleasant, attractive, and safe pedestrian pathways to the station should be established, based on observed foot traffic patterns of daily commuters.

Targeted programs with funding and regulatory incentives will be necessary to affect the implementation of transit-friendly development and communities. These programs would further ensure that municipalities will focus efforts to develop station area plans and zoning that foster intensive land uses at the stations and along transit corridors. A site acquisition procedure must be defined to allow public entities or private developers to develop properties along rail corridors that fulfill transit-friendly objectives.

Regional policy needs to be adopted that focuses development at rail stations. According to research conducted by the National Transit Access Center at the

University of California at Berkeley, transit-oriented residential developments that have been successfully implemented benefited from a regional planning focus on concentrating development at rail stations. Counties with the sharpest focus on transit-oriented development, Arlington County, VA; Montgomery County, MD; Contra Costa County, CA; and San Diego County, CA have the greatest number of implemented projects.[1]

CONCLUSION

Building transit-friendly communities, and making better use of the commuter rail system could add significantly to the region's quality of life and economic vitality. The tri-state region has all but used up the capacity of its highway system, and there are few, if any, opportunities to add new or widen highways. The region's 1,250 mile commuter rail system has the capacity to accommodate much of the region's future mobility needs, but only if concerted efforts are made to locate new jobs and populations in centers served by this system.

By building on our rich tradition of transit-friendly community development, we can take advantage of two of the regions unique competitive advantages: the world's largest commuter rail system, and the constellation of compact transit-oriented town and city centers that developed around the system.

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[1] Transit-Based Residential Development in the United States: A Review of Recent Experiences, National Transit Access Center, University of California at Berkeley, Michael Bernick and Robert Cervero, March 1994.